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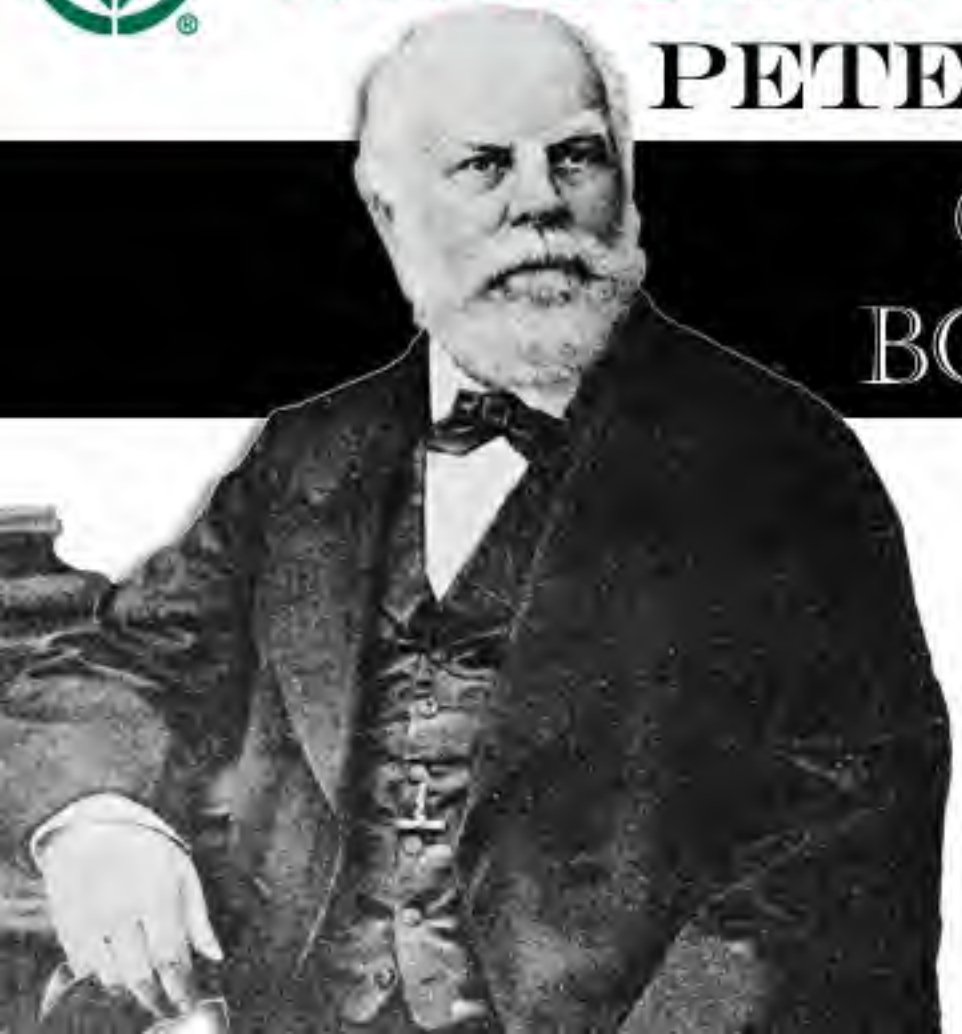

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Encl^s aster flexuosus from
salt marshes. Blufftown GC
9. Oc '73

Dr. Engelmann Rec^d Oct 15
Ans — 24

My dear Sir

Your two letters of
12 Sept & 2 Oc came safely to
hand. The 2. Tenuifolia is the low
pine-land oak alluded to especially
by Elliott. Evidently it is not biennial,
— whether Cinerea is or is not I cannot
say — the two being too far off for me
to examine. Evidently also 2. Virens is
not biennial, — I sent you spec's of this
& all the oaks just around me. After
a while you'll teach me something of
the oaks growing under my nose & you
may teach Chapman also. I am sure
that 2. Tenuifolia is not a variety of 2.
Virens, — leaf & acorn especially different —,
looks far more like Laurifolia (our "water
oak") ~~and aquatica~~ with a t. leaf & acorn
& like aquatica as to acorn. I sent you
a spec. of 2. Catesbæi collected this summer
showing the biennial fructification & also
later ones of same & Falcata. In my last
package I sent Elliotts Tri-loba — a
var. seemingly well marked. Hope to see
the shoot & flowers & fruit
soon. Have failed to find it on the beach or ~~Ft~~ where
ever I've been, — none about me blossomed
this Fall, nor indeed Q. al — The fruit of
the latter furnished me from Bartrams

Shortly is about this
Quitman line

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have not come to hand – so I fear another season will pass without my investigating anything about the Pulp-eaters: I greatly regret this – having intended to look after them carefully. Yes! I have examined some 3 or 4 root-stocks of Y. al. I find all about the same. Here is an accurately measured Trunk (I mean the solid portion excluding the erect leaves) 18 inches – 2 ft. – 1 – drawn 2 inches; 4 lateral – subterranean stems growing almost on the surface – say from 1 to 3 inches deep, – 3 of them about 18 inches – 2 ft.; – 1 shorter – 5 inches in length. Dug one or two larger, 3–4 feet high, – subterranean stems 3. – both must the same length & near the surface. No "taps"; – I say "tap", not because I don't know better but because it expresses exactly what I mean. Now the old & original stems of Y. fil. August (No 1) run down deep – 1 ft & over – but I believe all of the filamentous grasses in our Land soil do this more or less. I followed for a few days since of No 1 (the negroes having again lost waste the pot-hole for the "roots" – making it convenient for me to dig not having a shaft!) & it went over a foot, ~~to~~ how much deeper I know not – it was however decayed & broke off upon pulling. I believe this Decay generally & frequently occurs as the plant gradually transplants itself & moves from the main stock after flowering. At this place owing to the above darkeys I was able to get 2 feet & over

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stems with young suckers & I dare say
I shall send them as I wish you to see
this thing growing in all its beauty
The most delicate as to the & stalk
& leaf of all y'ems. Now as to things sent.
You were right as to package No 1. I sent
therein 1. 2. & 4. (2 of latter) next. Agave.
next 2 of Yucca - the one broad-leaved &
the other narrow leaved - hopeibly Recurvifolia
more likely the result of shade. In that
package also 2 or 3 of Bracteata (No 3)
& small one of Y. al. next cap. & leaves of
Y. Carnerosa (?) from Mr Cromwell of Albany
Va with bulbs. next a solid thick stem
of Bract.a (No 3) & No 2 & No 1 ~~The~~
& I believe 2 of No 4. (small) & 2-3 small
of Carnerosa (No 2). This a few days
since. To day I send scape & capsules
(ripe) of the mottled Agave. I believe
I mentioned it grew in ~~sand~~ but hackish
land near the marsh - but certainly not
rich land - it was a matter many
of them under small 2. trees, near
neighbours Salix odoratis, Solidago, Gly
Carl. Baccharis August &c The most
luxuriant plants I ever saw. Upon
digging them I found it extremely difficult
to penetrate to the roots on acct of old oyster
shells. evidently an "old Indian oyster bed"
with a thin crust of earth & that on the
surface - shells very old & decayed - the
roots growing in them. I am not chemist
enough to say whether this change in leaf &c
may not be effected by the lime & the
peculiar soil - most of them were purple
spotted - but some only slightly - some not
at all. The ~~stalks~~ ~~the~~ leaves seemed

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So remarkable (not having seen the letter before this) familiar end with the hirsute-leaved plant) that I sent a few to Mrs Cawley with other things he desired me to get) He sent one to Mr Gray & intended sent him in N. E— the latter ~~was to be with the~~ Mrs C— desired me to send Mr Gray a living plant, wh I did — giving him a few words as to where it grew. I don't think it is a new species — only a chance var from soil & lime & saltwater &c. I took over your letter No 1. It is no mistake as to the "Tap" of No 1 running down — as above stated it went at least a foot & broke off — but of course there were the lateral shoots wh stretched off. How did you cant say where it rose after such a "DIVE"! I must take a Shark — like Yr facetious not — digging friend — a rather sarcastic one I shd say. Thanks for the information as to the eventual decay of Yr Y. fol. I was amazed at the magnolia glauca Y. f. lat, I never having expected to see "with my own eyes" as Sherman is so fond of saying during that Ex- -amining Exam. (& our langues) that condition of the perennation! Secondary dilect is Cemetery Yf. generally complete — but not always! That African "ground nut" is cultivated in Ga — not here. we cultivate nothing here but Carpet baggers & black savagery & scoundrelism — hardy even on famous S — is the cotton!! In the Yf. package below the Ashe. Yr — you will find ~~of~~ Spec of 2. Vieus. Var. Dentata? grows only 3 - 4 ft high — but I believe with this & Maritima on ~~only 2 ft~~ pretty much the same. I send also fruit almost ripe of Sabal. Serr & another of 2. Pumila. Very truly & respy J Ware

I have to thank you for your kind letter of 7th inst. I am sorry as to the Yf.

Rec Jan 28
Ans March 23

Bellevue
S. Ca
22. Jan 1876.

Dr. Engelmann —

My Friend —

Thanks for the paper on Agave — the reading of which gave me great pleasure; — but I miss at — me to meet — you as to Var. B. Tigrina: being found "in salt marshes on the coast of S.C". ——

It does not — and could not possibly grow in such a situation! ——

No! I have found this mottled variety — in one

7935

spot only, — viz, — on a
little tongue of partly back=
=ish land & extending out
into the salt mud and
mask. On this spot I
find it growing in clusters
under Calsenas (Ilex Cas.ª)
& dwarfed live oaks, and
in and among the de-
-caying shells and fragments
of what seems to be an
old "Indian oyster bed", —
— for I have found pieces
of broken pottery when
digging the plants up!

Portions of this Tongue
of land are without vari-
-ety of flower during high
spring tides and gales,
& in such portions and
to be found Baccharis

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Agrostis à different
Saline grasses who love
such a soil, — but
our Virginia is too high
up to be thus sub-
-merged - unless perhaps
in such a gale as we
had in 1854! One of the
plants I sent you, it is
true, grew just on the
edge of the little bluff -
(about 18 inches or more
in height*) — but — cer-
-tainly not in a "salt
marsh" — where water is
but a few feet — Well —
but the latter is mud,
-salt-mud, while the
former is sand and earth
mixed with oyster shells.
The Grass just around
the Agave plants as I
start above — is Cynosurus

* Mr. Hall

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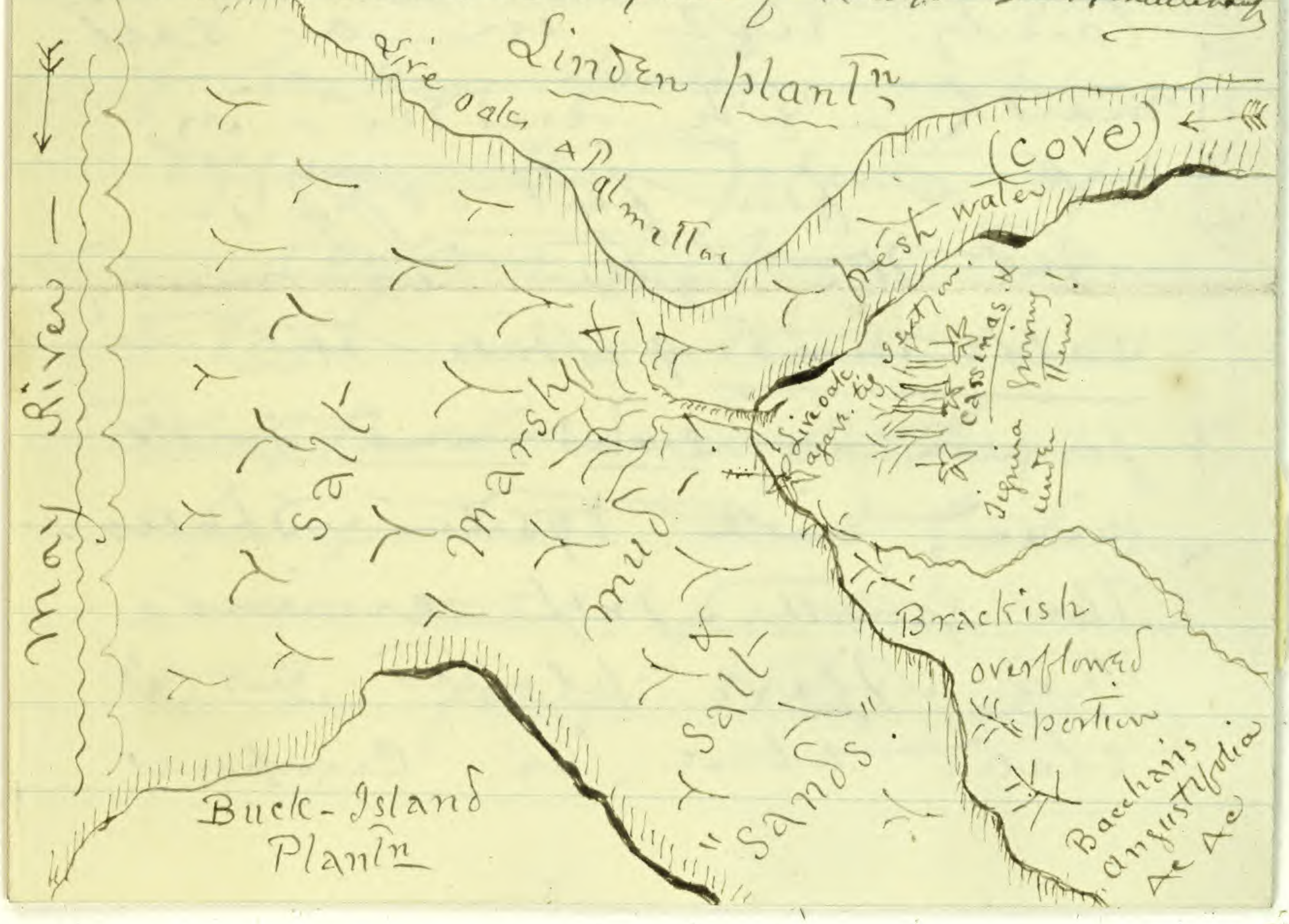
of Cabbage & live oaks & Saw palmettos, & these low lands do not grow in salt marshes although ~~[illegible]~~ ~~[illegible]~~ their nuts are frequently carried by the salt waters! A little matter sure enough & a great nuisance I make of it!— But it is best to have a thing right you know,— for future botanical Explorers are apt to be fond looking for var. B. Virginia in "the salt marshes of SC"— would be apt I think to bear them yes sticking to trim-mings of the pants of marsh reapers... — so hard would they have to work! With thanks — Replying Yellow & Hummingbird



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Rüdinger. Beiträge zur Histologie d. Gehörorganes. München. 1.10

* **Sammlung** klinischer Vorträge, hrsg. von R. Volkmann. No. 8—10. Leipzig.
Subscr.-Pr. ℔ Hft. 0.25 Curr.; Einzelpr. ℔ Hft. 0.35 Curr.

8. Ueber die nachträgliche Diagnose d. Geburtsverlaufes aus den Veränderungen am Schädel d. neugeborenen Kindes v. R. Olshausen. — 9. Ueber das Panaritum, seine Folgen u. seine Behandlung v. C. Hüter. — 10. Ueber den Shok v. H. Fischer.

* **Der erste Sanitätszug** des Berliner Hilfs-Vereins f. d. deutschen Armeen i. Felde. Bericht d. Prof. Dr. Virchow an den Vereins-Vorstand. Berlin. 0.25

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Annalen der Physik u. Chemie. Hrsg. von J. C. Poggendorff. Ergänzg. 5. Bd. 1. Stück. Leipzig. 1.20

—— der k. k. Sternwarte in Wien, Hrsg. v. C. v. Littrow. 3. Folge. 15. u. 16. Bd. Jahrg. 1865 u. 1866. Wien. ℔ Bd. 3.85

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Agave Virginica

22 Dec 1866

Illinois

Houston

Texas

filaments longer than style

adhering to lower fourth of tube, or less

ovary tripartite

styles exserted, filaments included

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APOTHECARY & DRUGGIST.
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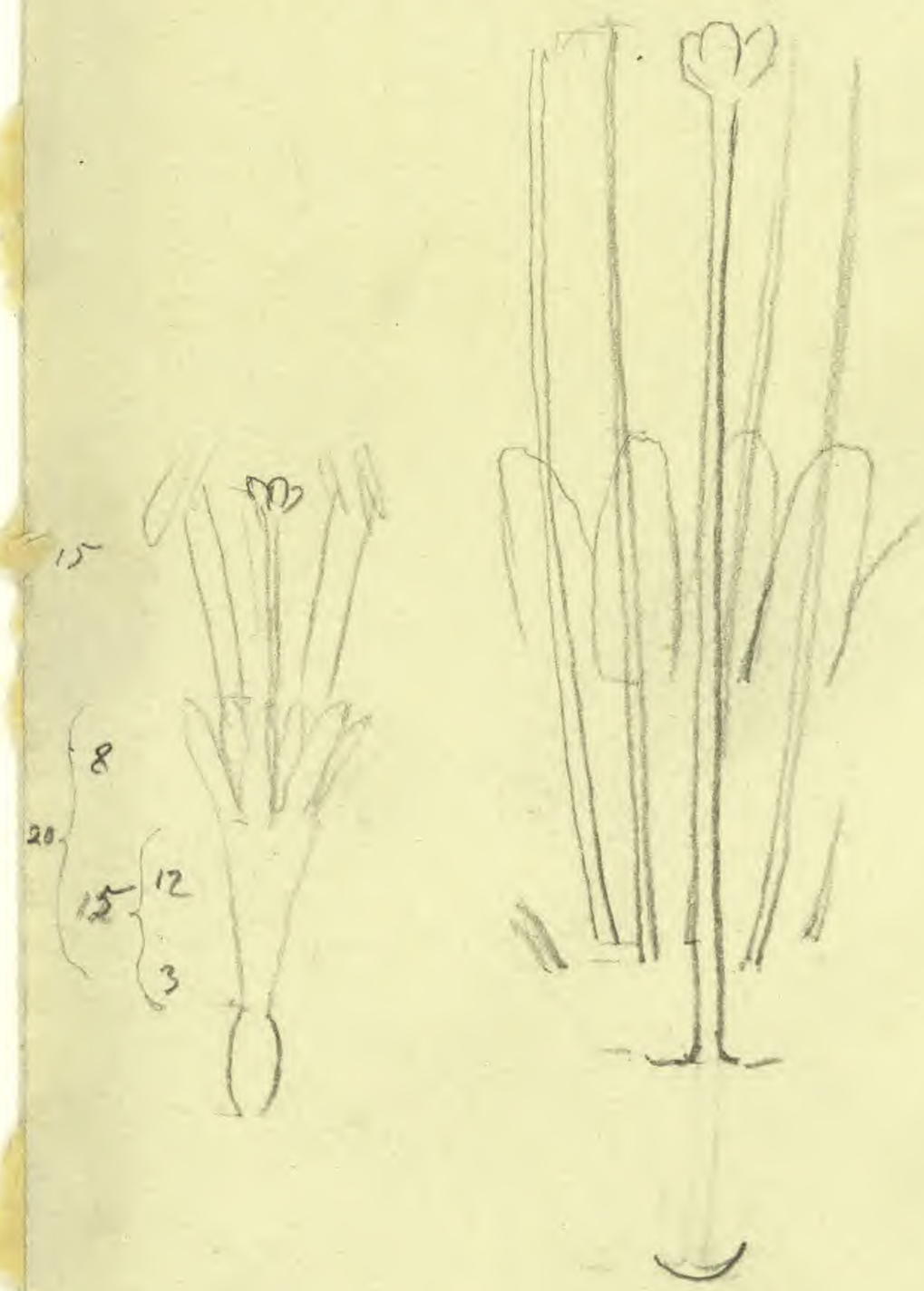
x2 A. virgin Feb 24 1871

Fort Smith

Dr Bigelow

146 Tenney



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x 2

A. Virginica

Febr 24 1878

S. Carolina

Ravenel

1/6 Torr

x 2

exterior plants

higher mountains

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STORRS ENGELMANN HERBARIUM
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Leith & Orlick
DRUGGISTS
Druggist Building, Olive and Fifth Streets
Saint Louis

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Agave Virginica

St Louis 1834

March 3 1871

11 mm exertion of stamen

5 — Calyx

22 { 17 { 14 — perigon

3 — insertion of stamen

8 ovary

anther 13 mm long

× 2

anther in bud

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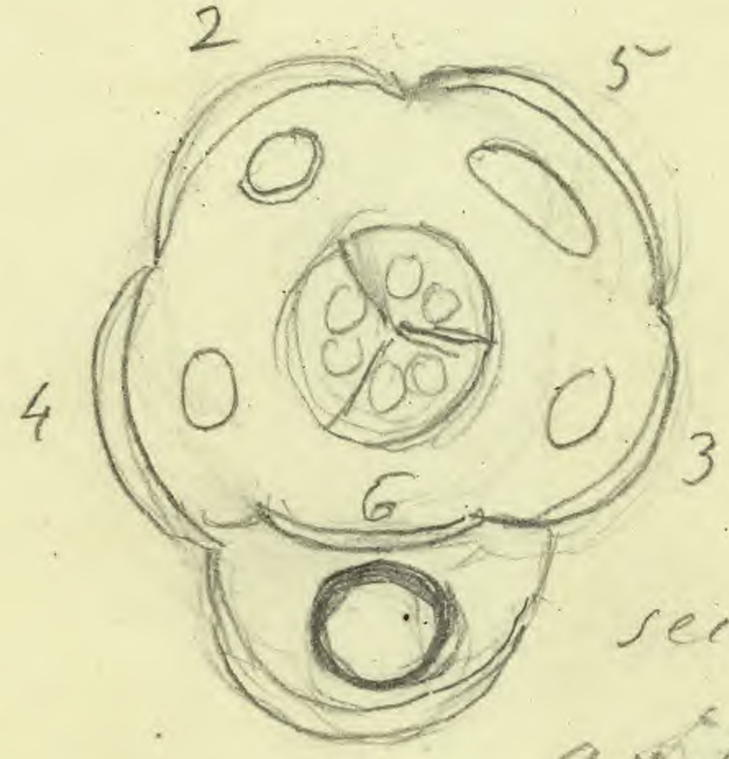
Agave Virginica — July 2 1871

Cult in my garden

monstrosity



Anthotaxis

second axis flower from axil of half dialytic first perigonal leaf which instead of with 6th is somewhat connate with 3d perigon lobe, and the 6th is internally connate with 4th both 6a & 1st forming a pocket inclosing third flower, on top of ovary — 4 stamens, 1 filled

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Leitch & Collies
CHRONOGISTS
South West Corner Fifth and Market Streets

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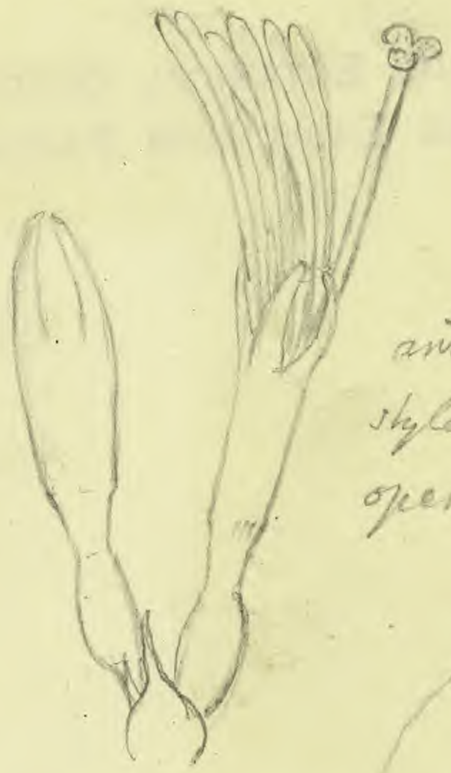
Agave Virginica

Polyantha from my garden

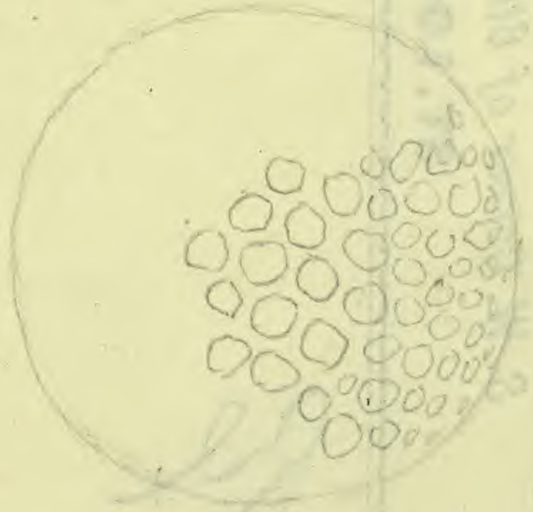
July 14 1871

4 p.m

In flower July 1 – 25th



anthers fallen, filaments curved upward
style elongated, stigma horizontally
opened, trifid



Pollen x 415

surface reticulate

$\frac{26}{415}$ 0.082 mm

anther
in bud

Edge of leaf white
irregularly white dentate

Largest leaves 1½–2 inches wide
11–12 inches long, undulate

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cm
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Agave Virginica
polyantha

July 14 1871

From my garden

2 flants

× 2

5/4

filaments exsert	14	mm	14 – 16 mm
whole filament	34		
anther	13		
perigon			22½
erect lobes	7½		
tube	15.		
upper free part	11½		
lower part adnate with anther	3½		
ovary	12		
whole flower	—		
with filaments	48½	50	mm
without filaments	34½		

perigon nearly twice as long as ovary
lobes half as long as tube
tube above the insertion of filaments about 3 times as long as below it
exsert parts of filaments longer than ovary about the length of the anthers

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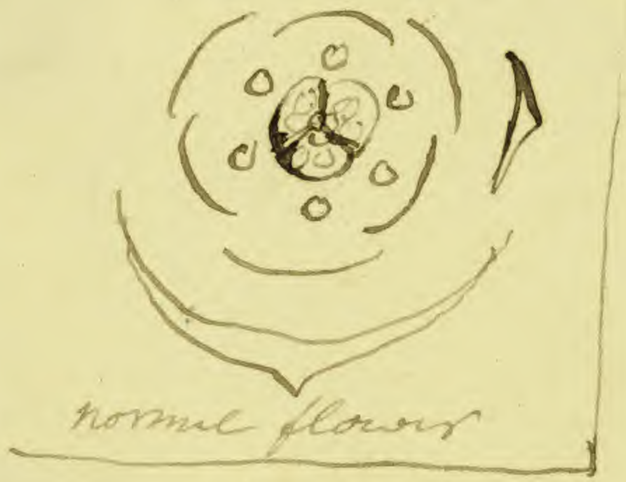
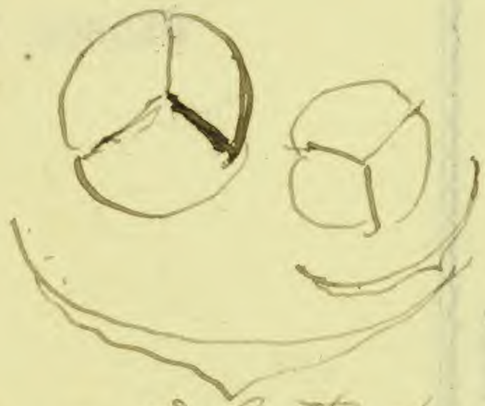
Compound inflorescences of Agave vivip. L. July 4-14 H

forma polyantha — from my garden

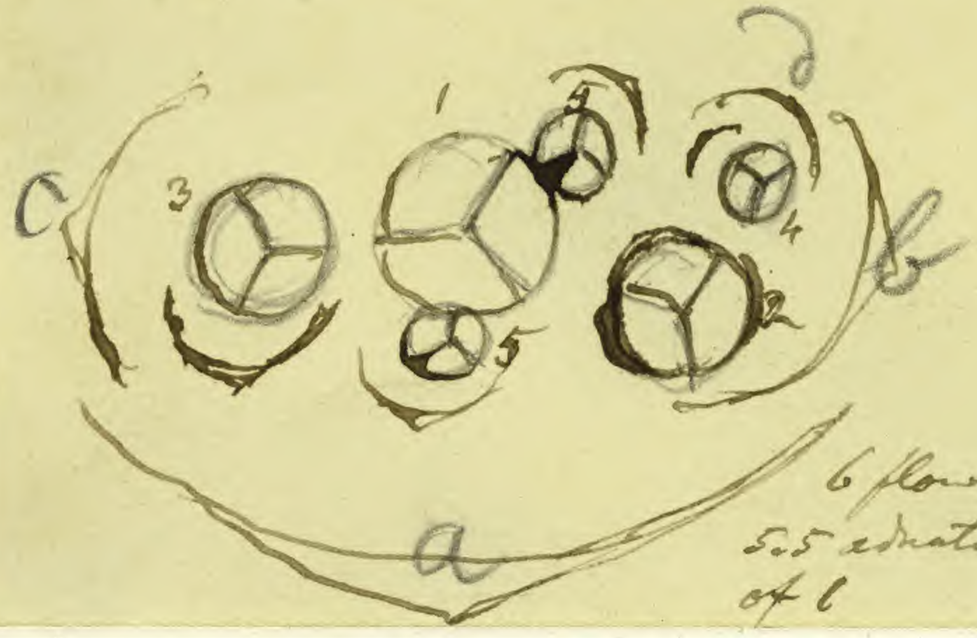


normal flowers

single flowers without bract very rare near top of inflorescence



no 3d bract at side of 2d flower



6 flowers
5-5 adnate to ovary
of 6

All Agave spicatae have normally a lateral bract on top of minute peduncle, at articulation

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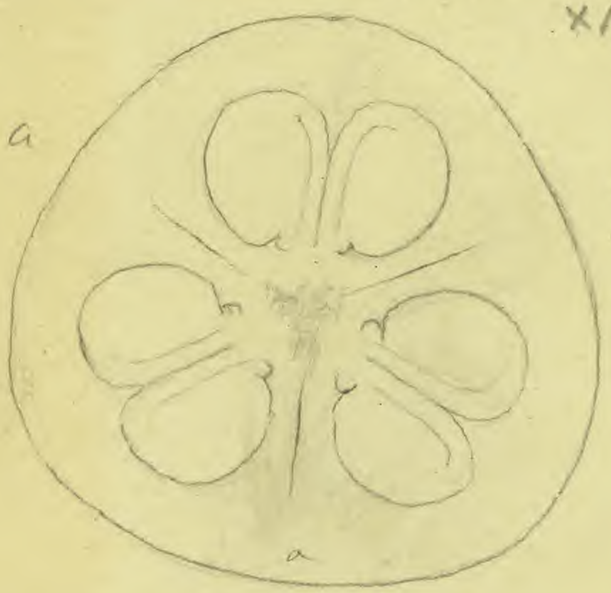
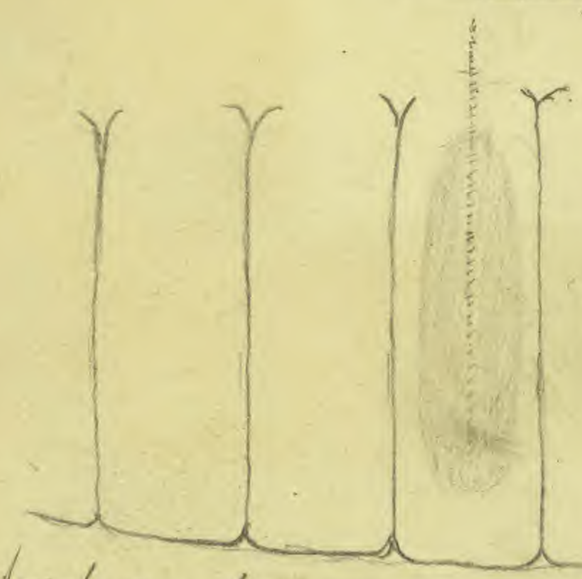
Agave Virginica

July 15th 1871

from my Garden

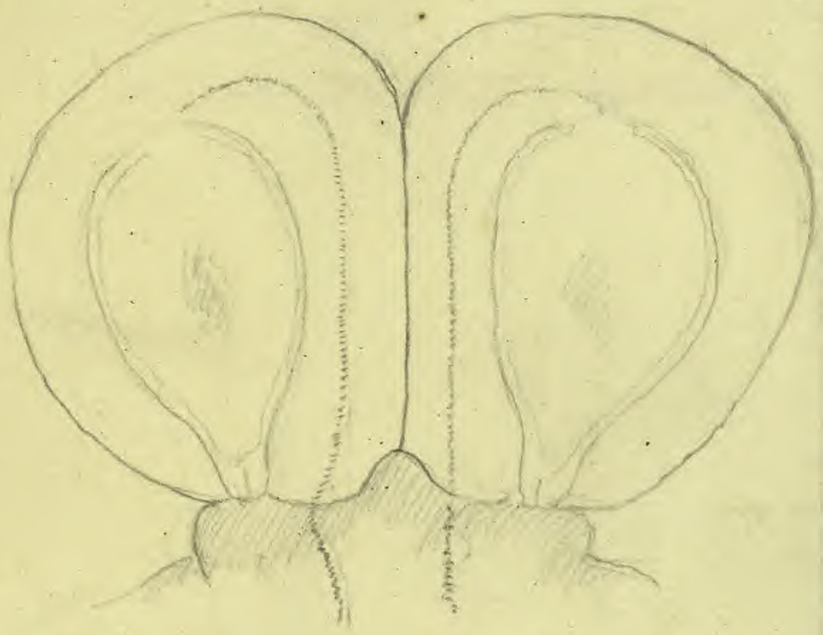
Sect. of ovary of flower
×10





fresh ovules ×30, 1mm long 0,33 thick

fresh ovules ×30 soaked
& Polish



The lines in Commissure (a,a) of carpels are sometimes open slits, but as the capsules opens longitudinally do not indicate the dehiscence

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A. Virginiana polyanthus July 20 1871

cult in my garden

bud x 2 somewhat shrivelled, took Dr.

natural Dimension

14 mm 7 mm lobes

14 7 } above } insertion
— 5 2½ } tube 9½ } below } of filaments

12 6 ovary

22½ mm whole bud

anther 12 mm long

perigo

16½ mm

12

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Engelmann & Curtis
DRUGGISTS
Corner Fifth and Market Streets
Opposite Market Square
St. Louis

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Agave Virginica May 20 1872

Illinois, Missouri, 1869

x 150

seed rather dull, scarcely or not rugose, cells very small & sunk, therefore seed delicately pitted; — surface of cells punctulate

St Louis 1853
seed pitted

in my garden
1872
from Missouri

S. Carolina
1871

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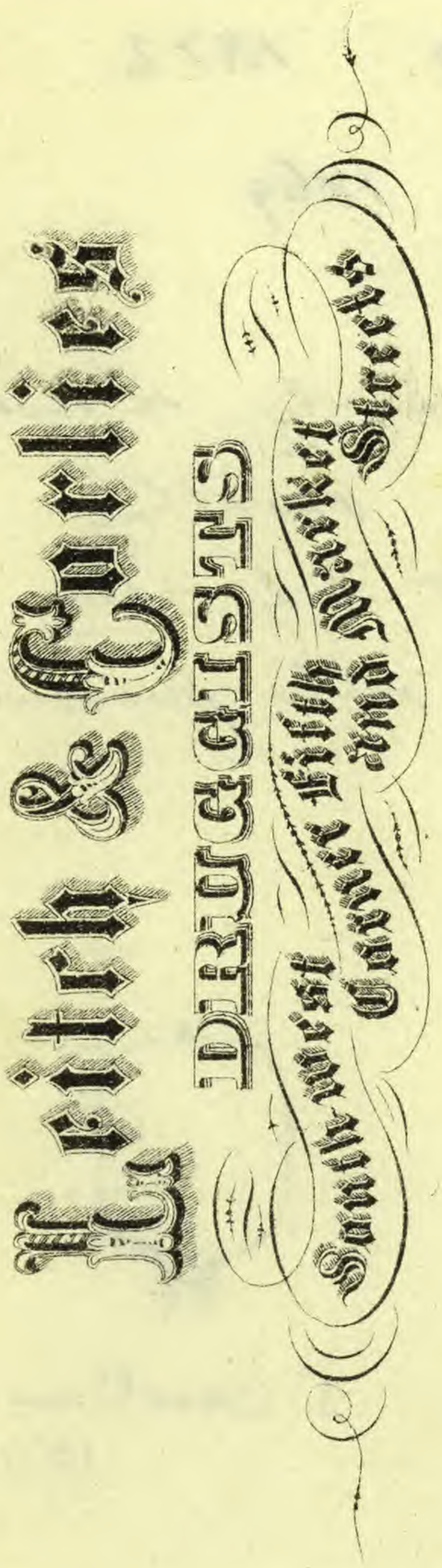

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Agave Virginica
from my Garden

Oct 2 2-87
3

Large Teeth of
the leaf margin
x 280

minute Teeth

edge
x 60

epiderm
and stoma
x 280

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APOTHECARY & PHARMACEUTIST.
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Agave Virginica tigrina, S. Carol. Octob 2 1873

epidermis ×280

epidermis

Compressed tissue of

colored cells

Parenchyma with spiring, Corge

Chlorophyll

crystals

Chlorophyll ×415 discs ? granulated

0.007 - 0.009 mm diam

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	1834 St Louis	1871 garden bud		Fort Smith St Carol	Fort Smith	Hearst	Tipton
anthers	13	12	13				
exsert st. anth	11	12	14		15	25	16
Perigon lobes	5	7	7½	7	8	4	6
Perigon tube free	14	7	11½	10	12	10	17
Perigon tube adnate	3	2.5	3½	5	3	3	2
Ovary	8	12	12	7	7	6	9

Agave Virginica

ovary 6–8 mm, sometimes as much as 12 mm. ⅓–½ the length of perigon

perigon 18–22 mm

lobes 4–7 even 8 mm ½ or nearly ⅔ length of tube

tube 13–15, even 17 mm

filaments adnate ¼ or ⅓ part of tube, ¾–⅔ free

over

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Ernest Fasold,
PHARMACEUTIST,
N. W. cor. Park Ave. & 10th (or South) St.
ST. LOUIS.

~~Ovary as half as long as perigon~~ ovule

Perigon 2 or 3 times as long as ovary

Tube narrow 2 or 3 times as long as ~~above~~ the insertion of filaments

~~of~~ filaments 2 or 3 times as long as below it.

Ovule ¼ or ⅓ the length of tube.

exsert part of filaments ~~about~~ slightly shorter than perigon — but ~~irregular, some shorter~~ in one instance even longer.

1874

Agave Virginica

OVV

July 5th 4 flowers marked on large simple spike I
4 on eastern most Compd. spike —

8 a m. anthers + former protrudg; at 5 p.m. fully
dvelopp'd, not shedding
pollen yet.

8. a m + latter fully out of the Corolla; at 5 same as
Stigma + both globose, included or just as long as oth.
as ~~parallel~~ perigon

at 8 p. m ~~anthers~~ stigmas ? still closed

July 6th 8 a.m. anthers effete, pollen yet adhering, stigmas closed, globose, as long
or a little longer than perigon.

7 p. m anthers withered, some even have fallen off — stigm
yet closed, but style elongated above lobes of perig —
much shorter than filaments.

July 7th ? / a m anthers dropping off — style elongated, stigmas begin to open
p.m. stig — fully open

		single spike	compound spike
9th	8 a m cloudy	anthers just emerging stigm included	anthers fully out, closed stigm incl
	7 p m	anthers fully developed closed stigm equal to perig	anthers fully developed closed stigm equal to perig
10th	8 a m	anthers completely effete no pollen stigm closed, emerged	anthers same same
	8 p m	anthers partly fallen stigm shorter than filaments almost closed	anthers fallen stigm almost open only as long as filaments
11th	8 a m ?	stigm not quite as long as the filaments half closed	stigm nearly as long as filaments, open
	8 p m ?	stigma open papillose	stigm open covered with glutinous
12th	8 a m	anthers just protruding stigm included	anth developed, stigm incl
	8 p m	— developed about	stigm as long as perigon

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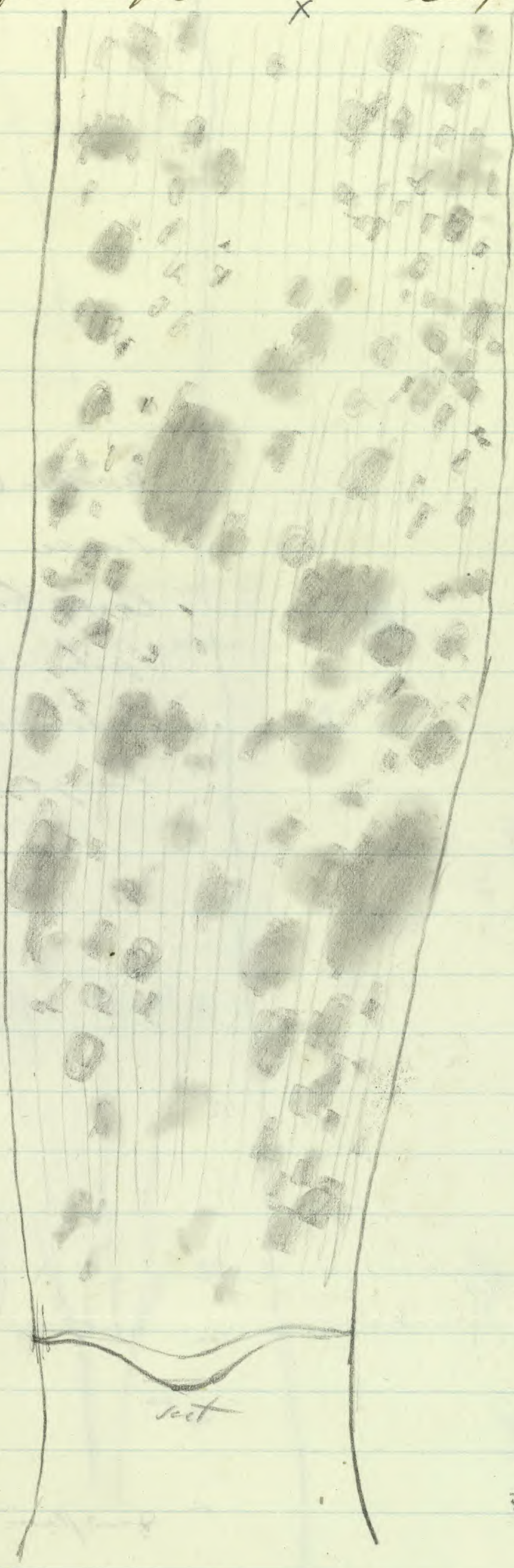
Oct 1st 1873

Agave Virginica
var tijrina

British
Rich damp soil; low coast - country of South Carolina
Decomposed Oyster shells near Bluffton, Dr Mellichamp.

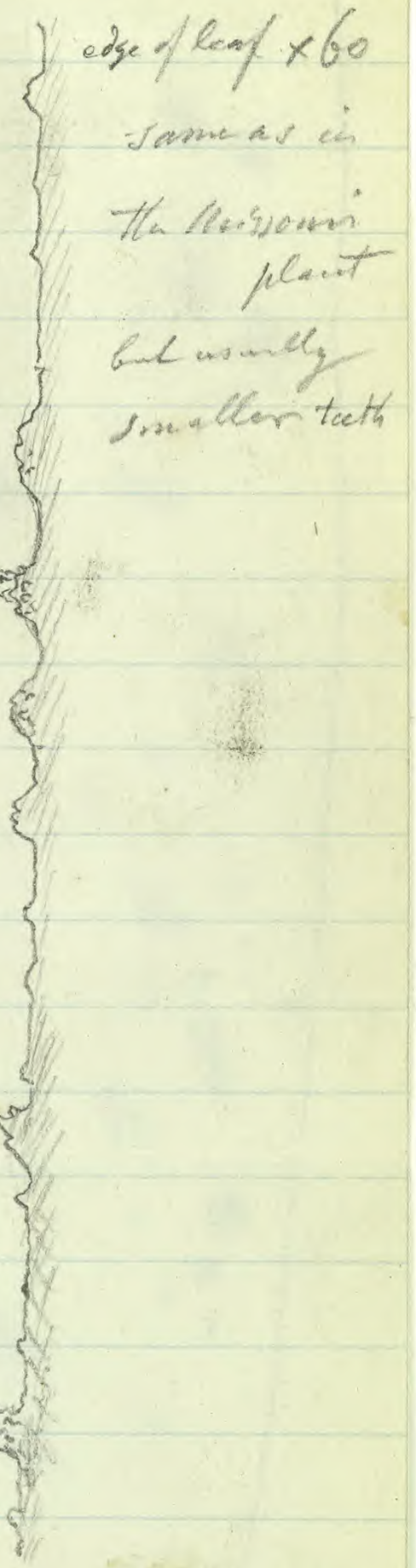
Largest leaf seen 20 inches long, over 2 1/2 wide
very dark glossy green with deep brown, very irregular,
often confluent spots



leaf strongly waved

upper third of
leaf free of spots
few spots below
independent of those
on upper side.

scapes 6 - 7
feet high (Mellichamp)



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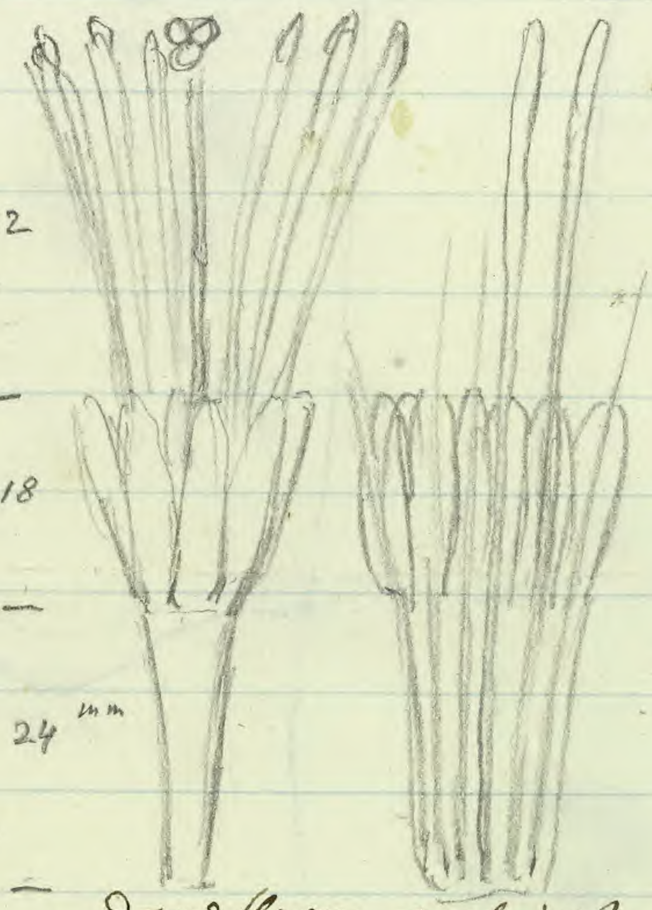
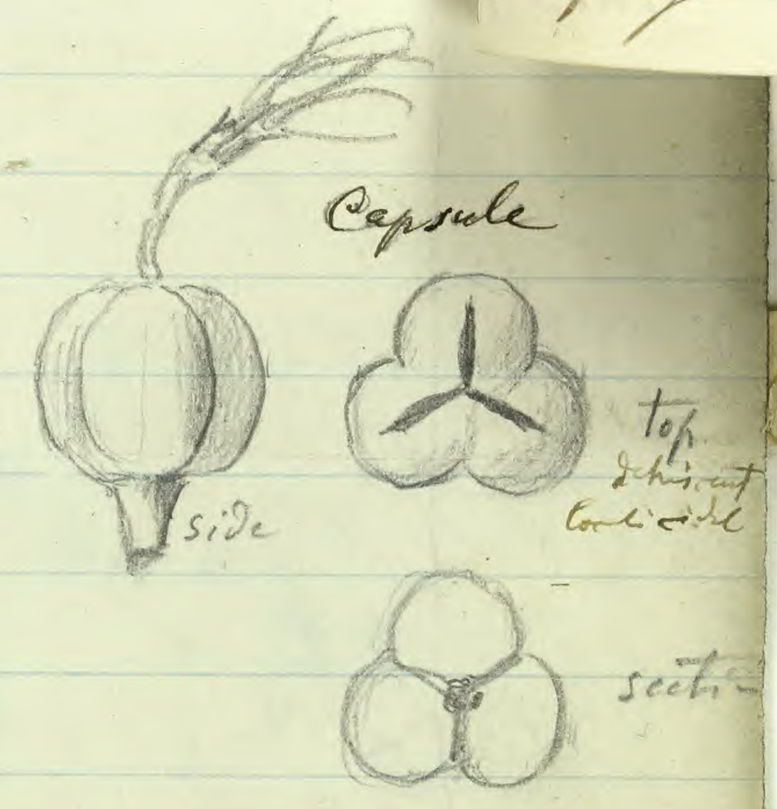
Oct 15th 1873

another leaf 15 inches long 3 inches wide
scape 8 feet long below with
leafy bracts 6— 3 inches long
spike rather dense, 3 feet long
capsules globose — triangular
large, almost truncate

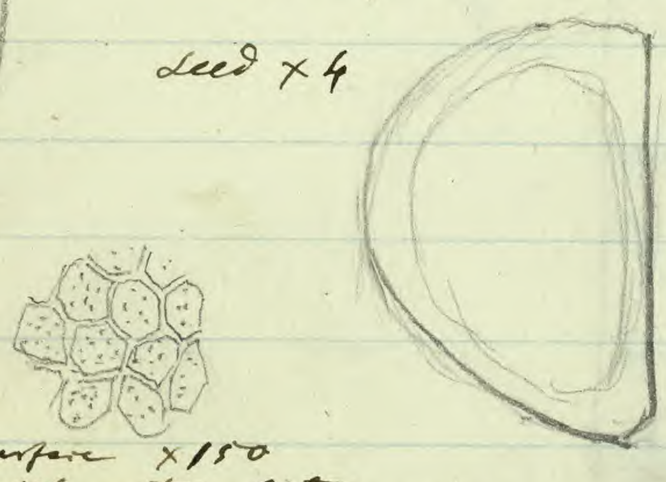
×2



dead flowers took ×2



seed ×4



surface ×150
lightly reticulate, area
dotted with minute warts

tube longer than calyx;
filaments inserted near
the base, long exserted
flower with ovary 21 mm = 10 lines
filaments exsert beyond the
perigon 16 mm = 8 lines
Capsule wider than long, transverse — In all
other forms of Texas, Illinois, & Canada capsule long

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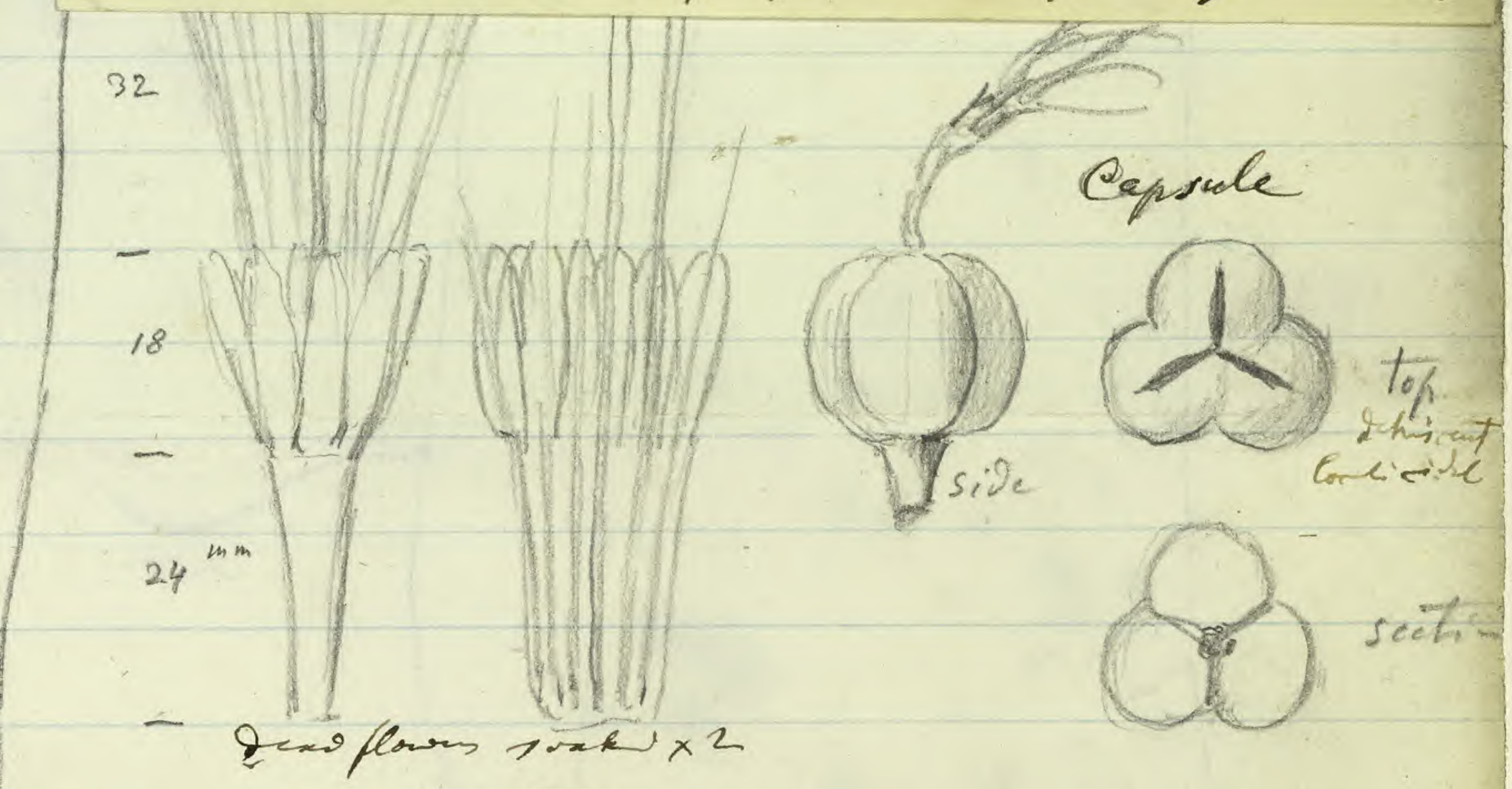
unable to satisfy [illegible]
3 fruits belong, I also find some
3 depressed pod having 5 lobes
Grays manual calls for only 4
carpa. I will be obliged if
determine whether the two
distinct or not and inform me.
Respectfully Isaac Martindale

7933

another leaf 13 inches long 2 inches wide
scape 3 feet long below with

Agave virginica, leaves
beautifully mottled with deep
purple spots, on bank of Cane
with Baccharis **argentea** folia and
live oak — leaves 15–19 inches long
scape 6–7 feet high
Hampton S. Carolina
Dr Mellichamp, Letter of Aug 20 1873



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Rec'd July 27/75

Mt Carmel Ill. July 23rd/75

Dr. G. Engelman

St Louis Mo.

Dear Sir,

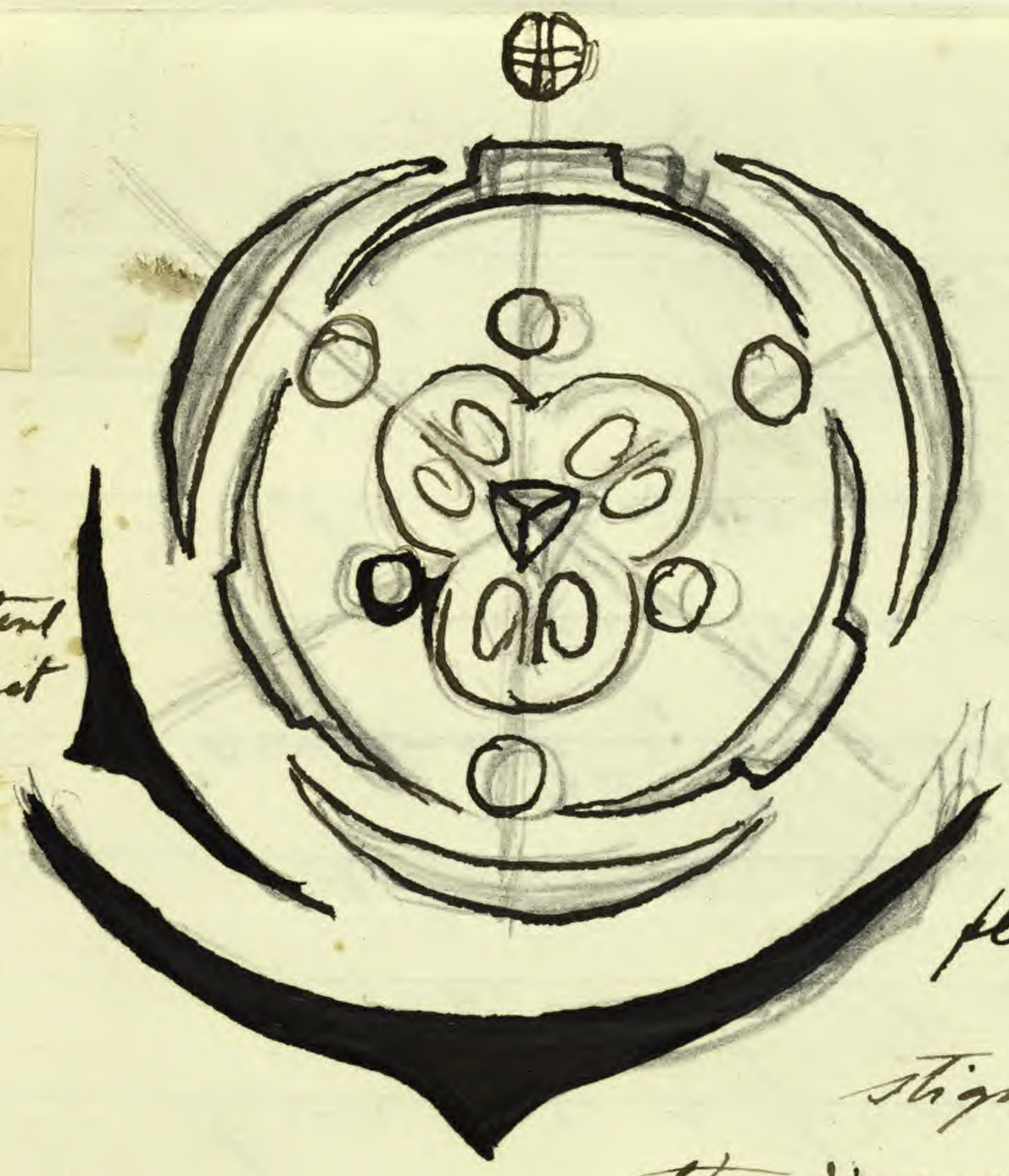
I send to your address to day some plants which I am unable to identify, or feel some daubt about. If you will send me their names, you will confer a great favor.

No. 1 I found in a low wet situation in a prairie, fenced up, where I last summer found specimens of Helianthus grosse-serratus. I find it quite common in this one locality, but have never found it in any other. ~~locality~~ it is usually about 4 ft. high. My first conclusion

Aug 7 1875

Agave Utahensis
var. nigrina

closed open
flowering



flower bearing bract

Stigma corresponds with the dissepiments of ovary

Thus pistil compound of three lobes, from each capellary leaf, Thus commissural

anther

filament	exsert	16		16	
lobes		6	17 filament		
free part of tube		15		23 perigon	48 flower
adnate part of tube		2	17 tube		
Ovary		9		9	

stigmas opening

48 hours after anthers or even later

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lateral but below the articulation of flower

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A Virginica L

First noticed by Linn — Amoenit Acad III. p. 22 (1751)
"Agave foliis dentato-spinosis, scapo simplicissimo"
The name is first given in Spec Plant ed 1
1753

Gronov. Flor. Virg ed 1. (1739) 152 [This is Clayton's note:] : Aloe Virginica
floribus viridibus sessilibus ordinatis, foliis augustis
marginatis autumno deciduis, radice perenni.
Staminis corollæ duplo longiora, Anthoræ Coopinia
premulæ incumbentes. ——— Clayton n. 498.
Gronov. Fl. Virg. ~~ed I (1762) p. 35~~ says only:
" Aloe foliis lanceolatis spina cartilaginea
terminatis, floribus alternis sessilibus."

Gronov. Flor. Virg. ed II (1762) p. 35 only
copies the above quotations, & dont give a specific
name — His ~~principal~~ description is copied
from Amoen Acad.

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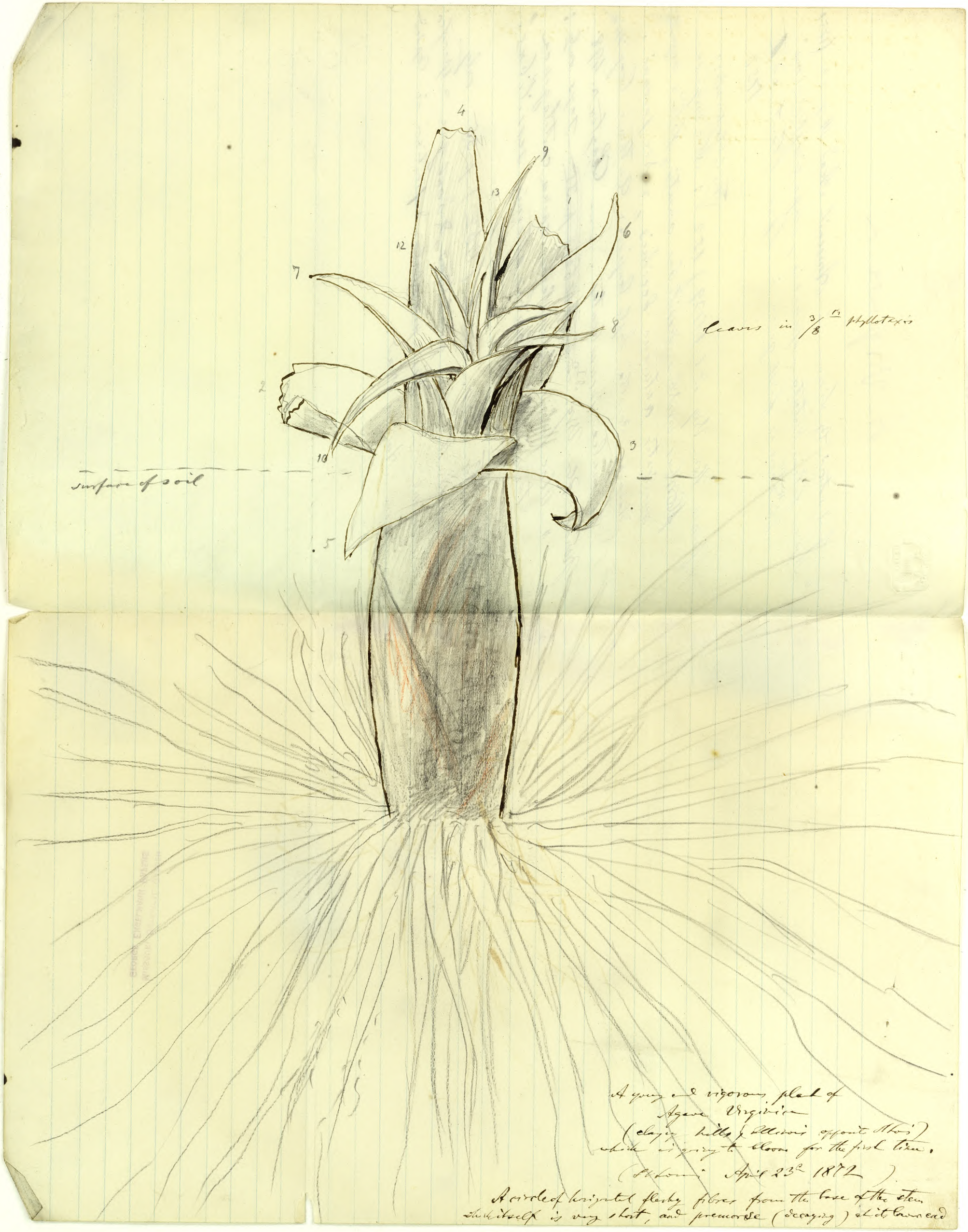
4
9
13
1
6
12
7
11
8
2
3
10
5
surface of soil
Leaves in 3/8 ☐ phyllotaxis
A young & vigorous plant of
Agave Virginica
(clayey hills of Illinois opposite Alton)
which is going to bloom for the first time.
(Alton Apl 23d 1872)
A bundle of longitudinal fleshy fibres from the base of the stem
which each is very short, and premorse (decaying) at its lower end

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Agave Virginica var tigrina

stamens 16 lines

Perigon { Lobes 9 / 21 / Tube 12

Tube more deeply Divided

Lobes about 3/4 of the length of tube

filaments inserted near base of tube

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Engineers and to publish [illegible]

long since.

7956

For your assessment, or such sum as you may choose to contribute, we will be oblig'd if you will settle with our duly authorized Collector, **Mr. JAMES C. BROADWELL,** who can be found at the County Collector's Office, in North Wing of Court House, or by enclosing the amount of your contribution to **CHAS. SPECK, Esq.,** No 211 North Main Street

Yours, &c.

CHAS. SPECK, } *Sub Committee of*
JOHN McNEIL, } *Committee of Seventeen.*

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2y 1871

Agave Virginica —

forma s. lusus polyanthes

2 any yards from the woods. No flowers last year this year about the end of May 2 shafts began to push up — both between 6½ & 6¾ feet high — spikes unexplored at least 2 feet in each long,

Few single flowers seen, only in the top of the spike, flowers mostly in twos or 3 or often as many as 5 or 6 from one axil

Last stamens in two the flowers were never in pairs, one was always the principal and earliest flower the others later in succession sometimes there were 3, on central, & later lateral ones.

Normally each flower bears a lateral bract at base of ovary; sometimes I find here the rare single flowers without lateral bracts. and sometimes in the fascicles a flower is found without this bract, but it is usually present

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